

Notice of Allowability

Application No.

10/674,847

Examiner

Tuan T. Lam

Applicant(s)

CHO, SUNG-WE

Art Unit

2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to IDS filed 9/29/2003.
2. ☒ The allowed claim(s) is/are 1-22.
3. ☒ The drawings filed on 29 September 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 9/29/2003
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Tuan T. Lam
Primary Examiner
Art Unit: 2816

Art Unit: 2816

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The following changes have been made to the subject application:

Abstract:

The present invention relates to a flip-flop circuit employing an MTCMOS technology comprising a master latch unit and a slave latch unit, for latching input data and outputting the data under the control of an internal clock signal, wherein an output of the flip-flop circuit retains a state just before the admission to sleep mode when the state of the system is converted from sleep mode to active by means of making a data state of an input terminal of a master latch into the same state as an inversed data state of an input terminal of a slave latch circuit in sleep mode and storing it. The flip-flop circuit employing the MTCMOS technology in accordance with the present invention is capable of retaining a state just before the sleep mode when the state of the system is converted from sleep mode to active mode by using the sleep mode control signal by means of adding the feedback circuit to the conventional flip-flop circuit. In addition, while the flip-flop circuit employing the MTCMOS technology in accordance with the present invention has an operation speed slightly slower than that of the prior art flip-flop circuit employing the low- V_{th} transistor or the high- V_{th} transistor, a leakage current of the present invention is significantly smaller than that of the conventional art.

Art Unit: 2816

The abstract has been made to combine two paragraphs into one paragraph in order to place the application in a condition for allowance.

Allowable Subject Matter

2. The following is an examiner's statement of reasons for allowance: the prior art of record fails to teach or fairly suggest means of making a data state of the input terminal of the master latch circuit into the same state as an inversed data state of an input terminal of the slave latch circuit in sleep mode and storing the data of the input terminal of the master latch circuit as called for in claim 1, a sleep mode control circuit for receiving an external clock signal and an inverted sleep mode control signal and generating an internal clock signal, a data retention feedback circuit for receiving a feedback input signal from the third node under control of the inverted sleep mode control signal and transmitting the feedback output signal to the first node as called for in claim 10. Therefore, claims 1-22 are presently allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T. Lam whose telephone number is 571-272-1744. The examiner can normally be reached on Monday to Friday (7:30 am to 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TIMOTHY P CALLAHAN can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2816

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tuan T. Lam
Primary Examiner
Art Unit 2816

9/27/2004